

# The University of San Francisco USF Scholarship: a digital repository @ Gleeson Library | Geschke Center

---

Master's Projects and Capstones

Theses, Dissertations, Capstones and Projects


---

Spring 5-18-2018

## Musculoskeletal Disorders in Healthcare Workers

Josephine Lauer  
[jul.lata@yahoo.com](mailto:jul.lata@yahoo.com)

Follow this and additional works at: <https://repository.usfca.edu/capstone>

 Part of the [Critical Care Nursing Commons](#), [Occupational and Environmental Health Nursing Commons](#), and the [Other Nursing Commons](#)

---

### Recommended Citation

Lauer, Josephine, "Musculoskeletal Disorders in Healthcare Workers" (2018). *Master's Projects and Capstones*. 788.  
<https://repository.usfca.edu/capstone/788>

This Project/Capstone is brought to you for free and open access by the Theses, Dissertations, Capstones and Projects at USF Scholarship: a digital repository @ Gleeson Library | Geschke Center. It has been accepted for inclusion in Master's Projects and Capstones by an authorized administrator of USF Scholarship: a digital repository @ Gleeson Library | Geschke Center. For more information, please contact [repository@usfca.edu](mailto:repository@usfca.edu).

Musculoskeletal Disorders of Healthcare Workers

Josephine Lauer

University of San Francisco

## Musculoskeletal Disorders of Healthcare Workers

**Abstract**

Musculoskeletal Disorders (MSD) are one of the leading causes of disability in hospital nurses and nursing aids and is a high cost problem in the healthcare industry. Working in a complex environment of an acute medical floor where repetitive nature of patient handling, *can* lead to musculoskeletal injuries for healthcare workers. This is evidenced by work-related injuries in hospitals nearly doubling compared to private industry and hospitals are one of the most hazardous work environments in the country. Musculoskeletal injuries of healthcare workers are an ongoing problem which requires investigation due to high risk of reoccurrence. This is especially true when related to direct patient handling given the patient(s) health care demands, while the nursing staff works with limited resources, time constraints, frequent patient handling, repeated shifts as resource nurse(s), low staffing and lack of leadership. The purpose of this project is assessing one's microsystem for MSD, with the lenses of a CNL systems analyst and advocacy for healthcare professional competency by facilitating a plan of action to implement changes to benefit nurses and lead them with EBP to lower injuries obtained in the health care industry.

Musculoskeletal Disorders (MSD) are one of the leading causes of disability in hospital nurses and nursing aids and is a high cost problem in the healthcare industry. Centers for Disease Control and Prevention estimated that in 2015, overexertion injuries for healthcare industry was \$1.7 billion. Working in a complex environment of an acute medical floor where repetitive nature of patient handling, *can* lead to musculoskeletal injuries for healthcare workers. United States Department of Labor, Occupational Safety and Health Administration reports, healthcare workers sustain the highest rates of MSDs out of any other industry. In 2010 alone, there were 27,020 cases indicating an incidence rate of 249 per 10,000. This average beats the average of any other industry seven times over. The report also reviewed due to work related risks, as many as 20% of direct care nurses leave the position. On a macro and micro system, the value of nursing expertise is lost, and this cannot be quantified as this expertise is simply invaluable, especially in specialized care.

According to the Washington State Hospital Association (WSHA) (2017) Power Point, the rate of work-related injuries in hospitals nearly double compared to private industry and hospitals are one of the most hazardous work environments in the country. WSHA data for year 2015 incident rate for MSD was 4, 271 total claims; severity rate cost associated with MSD was a cost of \$17, 565 associated reporting of MSD having to do with patient handling; 2016 incident rate was 4, 625 total claims, severity rate cost of \$14, 055 associated with patient handling and in 2017 incident rate was 3,104 total claims with the severity rate cost of \$10,683. 2017 Bureau of Labor & Statistics report using data reported by private employers in 2016 shows 4.2 (per 100 full-time workers) incidence rate and 585.8 (number of cases in thousands) of nonfatal occupational injuries and illnesses of health care and social assistance industries alone.

Additionally, the number of injuries accounted for days away from work to be as high as 19,560 (2017) Power Point.

The intensive care unit (ICU), where this project took place, most of the patients are bedbound requiring frequent repositioning for the need to prevent poor outcomes and these include several reasons stemming from mechanical ventilation, high risk medications and technological machinery aiding in keeping the patient alive. Another aspect are patients with alcohol or drug withdrawals with some mental health problems and aggressiveness which impact work safety leading to violence as another cause(s) for injury. WSHA data aggregate shows aggressive patient incidents claims for 2015 was 265 with severity rate cost of \$2,561; 2016 aggressive patient claims were 294 with severity rate cost of \$3,711 and 2017 aggressive patient incident claim was 244 with severity cost of \$2,210, (2017) Power Point. The physical nature of manual handling-related injuries account for “33% of musculoskeletal injuries and 6% involving aggression or violence”, are among the reasons ICU is more susceptible to musculoskeletal injuries (Health and Safety Authority, (2014-2015). Per policy, ICU nurses change patient positions every 2 hours to avoid skin breakdown that could lead a multitude of other problems with the potential of a longer hospital course. Additionally, if a skin injury (decubitus ulcer or pressure ulcer) is caused in the hospital, the hospital does not receive any reimbursements for medical costs associated with care of that injury (CMS.gov). In this hospital’s ICU, there are no patient care aids; rather, there are only registered nurses who are highly skilled in all aspects of ICU nursing, to aid primary nurses in tasks such as position changes and escorting patients for MRI, CT, X-ray, IR and the like. They also transfer patients off the ICU floor once a patient is ready to transition into medical/surgical units which requires them to push non-driving beds.

The 2011 Bureau of Statistics, reported hospital workers incur musculoskeletal disorders/injuries twice that of the national average and 50 percent of those injuries are reported by nursing and nursing supportive staff (Bureau of Statistics: Safe patient handling program, 2011). Statistical data has always been the evidence for healthcare workers obtaining injuries related to patient handling; however, since 2011, only 9 states have enacted a safe patient handling legislation. These states include Illinois, Minnesota, Maryland, New Jersey, Rhode Island, Texas and Washington (U.S. Federal and State Legislative Summary. Safe Patient Handling/Ergonomics, 2011). In 2012, California came onboard with safe patient handling legislation.

Musculoskeletal injuries of healthcare workers are an ongoing problem which requires investigation due to high risk of reoccurrence. This is especially true when related to direct patient handling given the patient(s) health care demands, while the nursing staff works with limited resources, time constraints, frequent patient handling, repeated shifts as resource nurse(s) low staffing and lack of leadership. The purpose of this project is assessing one's microsystem for MSD, with the lenses of a systems analyst, and determine a plan of action to implement changes to benefit nurses and lead them with EBP to lower injuries obtained in the health care industry.

### **Clinical Leadership Theme**

This project aims to improve processes which lead to MSD of healthcare workers at public hospital located in Washington State. The process begins on a 30 bed ICU floor and will end within the microsystem of the ICU. By working on the process, one expects to lower MSD reporting for year 2018, provide education and tools to use equipment already in place and

awareness of ways one can obtain MSD. Additionally, this project aims to address departmental practices which also are leading causes for MSD. Implementation of MSD project is important to work on now because ICU patients demographics require frequent (and often physical) assessment due to acute cardiac, respiratory and neurological conditions which incapacitate the ability for the patient to be active in own care. Using the combination of nursing inquiry, knowledge of investigation and EBP, competencies of a system analyst in reviewing the microsystem for better patient care, advocate for the nursing practice and member of a profession, one will spend time observing factors which can lead to musculoskeletal injuries in ICU. The Institute of Medicine (IOM) report *Crossing the Quality Chasm* (Institute of Medicine, Committee on Quality of Health Care in America, 2001) has *safety* as a number one priority in the provision of care to patients'. One believes, this goal is met only through an environment that is also *safe* for the healthcare professionals. Advocacy for the healthcare industry professionals, is part of one's end-of-program-competency and required experience for a CNL who effects change through advocacy for the profession (USF, CNL). To effect change as a member of a profession, one understands the link between an educated practice based on the foundation of quality improvement and the continued assessment of the microsystem as to maintain value within the nursing profession.

### **Statement of the Problem**

Patient handling goes together with patient care, therefore musculoskeletal injuries to healthcare workers is almost never avoidable. Data obtained from employee health showed there were 6 workman's comp claims to ICU in 2017 related to MSD. On average a workers' compensation claim related to patient handling cost is "\$15,600" (Occupational Safety and

Health Administration (OSHA), as cited in power point presentation by bsi. The highest of those claims were related to bodily injuries to back area, lower-lumbar/sacral, accounting for 38 percent of the injuries and shoulder injuries accounting for 15 percent. Additionally, strain was also reported at a staggering 47 percent. (TRISTAR document from Employee Health). Director of Operations of Ergonomics Plus (2018), emphasis there are direct and indirect costs associated with MSD. Direct costs are those that include worker's compensation payments, medical payments and legal expenses. Indirect costs include training replacement employees, accident investigation, overtime, lost productivity, costs associated with lower employee morale and absenteeism.

Evidence shows that nurses comprise the largest percentage of hospital workforce. A vital aspect of safe work environment is nursing morale and productivity to job satisfaction in the healthcare industry while also considering a safe work environment that fosters mindfulness in alleviating MSD. When nursing staff are fatigued, work overtime due to nursing shortage, work repetitive resource duties, musculoskeletal injuries are bound to happen. Costs, productivity and employee morale are important aspects for most any organization but even more so for the healthcare organization because reimbursements are based on HCAHPS reporting.

Furthermore, when consumers use Medicare.gov tool, Hospital Compare to investigate one's hospital, they will consistently find one's hospital falling behind the National average in nursing communication; doctor communication, receiving help as soon as the patient wanted; pain not always being controlled; not receiving education on medications being administered; and having a quiet environment (Medicare.gov Hospital Compare). According to a study conducted by Chen, Koren, Munroe, Ping (2014), looking into Magnet hospitals and finding



when a work environment is rich in support, with adequate staffing, higher nurse job satisfaction was the basis of the defining design in the link to higher HCAHPS scores. The author's reviewed nursing surveys that highlighted "hospitals with higher nurse-assessed quality of the nursing work environment and higher levels of nurse staffing and job satisfaction were more likely to receive higher HCAHPS scores".

An establishment of a safe work environment in the ICU by decreasing MSD is timely and necessary. Jakobsen, Aust, Dyreborg, Kines, Illum, Andersen, (2016) conducted a yearlong randomized control trial of 27 departments in 5 Denmark hospitals and found barriers to the use of assistive lift devices, sliding boards, and patient transporters were largely due to organizational and often related to individual motivation, lack of proper meaningful guidelines and management support. Identifying these barriers as also being present in one's microsystem, an opportunity to propose change is warranted. Evidence shows that leaders who participate in organizational interventions for improved use of assistive devices are successful because policies, programs, and practices on hospital units impact the work and health of individuals employed on those units (Hopcia, Dennerlein, Hashimoto, Orechia, & Sorensen, 2012).

Year 2017 in one's microsystem, three experienced nurses left ICU to pursue CRNA and two left to pursue other specialties; yet only two fulltime employees were hired to replace them. With the flu season and subsequent high acuity patients, there has been many calls and text messages being sent for ICU staff from the staffing office to work extra shifts if possible. On a weekly basis, there are at least 2 nursing staff working 16-hour shifts daily. This is broken down as a nursing staff coming in at 3PM (4 hours earlier from regularly shift) working until 7:30AM the next morning, others working from 7PM until 11AM the next morning, 7AM to 11PM which

accounts for 16 hour shifts and returning to work for their regularly scheduled shift of either 7AM or 7PM the same day. These long shifts do not meet the standard for at least an 8-hour rest period between shifts as required by law (United States Department of Labor), can lead to fatigue, mental, physical and emotional stress.

### **Project Overview**

Through reflections of observations, unit data from employee health, nursing questionnaire survey results (Appendix D), and management meetings to understand risks associated with musculoskeletal injuries in ICU, one will complete a proposal to methods in decreasing MSD(s). Through verbal conversations with nurses and survey results, the most frequently reported barrier to the use of ceiling lifts has been the time it takes to set up the sling. Secondly, the design of the ceiling lift does not function to allow the ability to move the lift horizontally. The lift only moves vertically further limiting the ability to navigate the patient lift especially when ICU patient equipment(s) are in the room. Unfortunately, this factor cannot be changed at this time. Other barriers identified are organizational factors which evidence suggest might play an important role in the occurrence of MSD in nurses and aides. This includes the suggestion that leadership support and enthusiasm combined with establishment of a cultural shift for bedside nursing practices to follow EBP and change are essential for establishing a practice standard that can be sustained (The Advisory Board, 2018).

In this project, one aims to improve the microsystem processes which lead to MSD. The process begins with the identifications of system problems which includes the lack of utilization of ceiling lifts, microsystem learned-behavior practice to not use ceiling lifts for most if not all ICU patients not just obese patients, short staffing due to many nursing staff leaving the

department to pursue higher learning, consecutive shifts as resource nurses, large patient equipment's in the way of patient care, scanners in the corners requiring overstretching and bending and at times, nurses taking the risk of changing positions by themselves. The process will become complete at the end of year 2018. One's goal is that the 2019 report using microsystem data from 2018 will show less or no MSD reporting from the time of project change initiation from February 2018. Similarly, one expects improvement in nursing morale, reduction of fatigue, more consistent use of ceiling lifts, rotation of resource nurses daily, changing the location of patient ID band scanners to sit next to the computer, collaboration between dialysis nurses to allow more room for nursing to complete patient care tasks, and leadership rounding and support. The continuous efforts to employ proper body mechanics, observe one's environment prior to performing patient care, using equipment in place and changing current system scheduling to reflect emphasis on rotation of resource nurses will lead to improvements in less MSD reporting. Lastly, one would like to emphasize the organizational policy (Appendix E with pertinent information highlighted in red), for management to assure employees receive annual training on methods for safe patient handling, lift, transfer, reposition and proper body mechanics with use of devices and aids (Safe Patient Handling). In engaging a conversation regarding this policy, one's department director stated she would ensure yearly training is included as part of ICU competency which takes place throughout the year. She also stated as part of the Joint Commission standards, any policies within one's microsystem must be kept track as being met by employee signage in a case where there is an audit of employee policies.

## **Methodology**

### **Rational**

None use of ceiling lifts, repeated use of resources nurses on consecutive shifts, low staffing, nursing fatigue, room layout and lack of leadership are the needs assessment driving force behind this project broken down into a Fishbone diagram (Appendix B). When building the new tower to house the ICU unit in 2012, the design for each patient room had a ceiling lift. Through conversation with management, some of the goals for having the lifts were for safe patient handling, lowering the risk of physical overload on staff and convenience and accessibility to promote compliance. These goals are not being met as these ceiling lifts are rarely used. Therefore, the greatest goal and objective of this project is find out why nursing staff are not using the lifts and thereby reestablish the original purpose through staff reeducation. Some of the barriers that nursing staff reported for not using the lifts are: 1) the time it takes to set up the ceiling lift and get the patient hooked up, which still requires 1 to 2 nurses; 2) not knowing where the slings are located; 3) sometimes it's easier to just move the patient with a resource nurse; 3) insecurities of using the lift due to equipment's the patient might have as lifesaving interventions. Another major area of this project is to rotate resource nurses. The responsibilities of resource nurse are that of coordinator and problem solver. Resource nurse(s) have greater experience and knowledge in ICU protocol(s), advanced equipment/device proficiency, higher clinical competencies and proficiency in high risk medications a patient might be on. Due to the need of these important requirements and not having enough nursing staff to accommodate this position on a regular basis, the same nurses are being assigned resource nurse roles by the culture of training the charge nurses on how to choose who will be in

this position for the shift. However, consideration to consecutive resource nurse shifts have not been the forefront of discussion or thought because this hasn't been brought up. In a research report by Hopica, Dennerlein, Hashimoto, Orechia, Sorensen (2012), the author's concluded that higher percentages of musculoskeletal injuries are reported as strains and sprains by nurses and nursing aids and these are likely due to organizational practices of longer shifts from traditional 8 hours, overtime due to high census, low staffing and consecutive shifts. Evidenced based practice (EBP) as cited by Przybysz & Levin, The American Nurses Association (2013), publication emphasizing multifactorial interventions such as patient handling equipment, minimal or no-lift policies, continuous training, lift teams and organizational factors such as leadership support are fundamental to decreasing MSD injuries. Lift teams in one's organization are only employed Monday through Friday. In efforts to investigate this matter, one found the main reason was due to out-patient surgery being open only, Monday through Friday. One's goal for this objective is to introduce the costs associated with hiring staff to also accommodate weekend shifts. This project aims to reduce musculoskeletal injuries to healthcare workers in ICU by at least 50% post interventions outlined in this essay by end of year 2018.

### **Cost Analysis**

One's microsystem accounted for six workman's comp claims related to musculoskeletal injuries in 2017, at a total cost of \$26,749.48 (Appendix A). In recalling a few of the nurses whom obtained these injuries and engaging in conversation, a few of them reported their injuries were from patient lifting & turning, patient aggression, working as resource nurse and overtime. They reported mid to lower back and shoulders as the injury site(s). Employee health report (2019), indicates from the inception of the data provided to self (uncertain of inception date), up

to 2/28/2018, one's organization has incurred 66,948 sprains; 494,997 strains; 1,573 inflammations; and *Claims by Body Part* indicates 149,246 left and right shoulder injuries and 125,774 upper, mid and lower back injuries. If one were to divide the 6 injuries cost of \$26,749.48, each would breakdown to about \$4,458.25. Using as an example for one cost and multiply that with back injuries alone, one would calculate a total of \$560,731,936 monies spent. Of course, this is just an estimate, but the point is that the costs are substantial and enough to require continuous quality improvement investigation, training in proper body mechanics, yearly competency to use ceiling lifts because the nature of ICU work requires the reorientation. There should also be a diligent effort not only for one's microsystem but organizational culture, to become involved in being present as leaders. When leaders are present, they are observant, they engage conversations to assess nursing staff, they are available even when not visibly seen because they have established an expectation/linkage, that employees' concerns, input, work are valued and respected. The nature of ICU work, patient acuity, none use of ceiling lift, repeated use of same resource nurse on consecutive shifts, low staffing with high patient census, room layout when dialysis equipment, and other large equipment along with patient badge scanners being behind the patient bed and lack of leadership are all aspects on the ICU practices or lack thereof, requiring an assessment and intervention.

On average, each workman's comp claim related to patient handling cost is around \$15,600 (Occupational Safety and Health Administration, as cited in power point presentation, 2017). Some of these costs are associated with days away from work, rehabilitation, employee turnover, training, overtime, incident investigation time, productivity and moral. In a study conducted by Black, et al, (2011) claims frequency, injury incidence rates, and costs in health

care workers in the United States was highest compared with other industries combined. Another statistic is from Bureau of Labor Statistics (2017) which estimates \$22,300 costs associated with lost-time claims and \$24,000 on an average for low back injury of which requires a generation of an additional \$1.5 M in revenue to cover the cost of that injury. Musculoskeletal disorder will cost one's organization minimally in financial resources compared with the latter. The proposal to have lift teams also available on weekends can be estimated by accounting for two individuals working an 8-hour shift at an hourly rate of about \$21 an hour to about \$25 an hour which would be a cost of \$336-\$400 per weekend ( $\$21 \& \$25 \times 16\text{hours}$ ). Other aspects of one's project will be more educational based for the nursing staff as well as for the management to see the results of the questionnaire one will put together.

Another item that one will propose is to not use the same nurse as a resource nurse for more than 1 shift in a consecutive scheduled period. The cost that could be associated with this would be to allow newer nurses to get trained on higher level ICU competencies which have to do with machines such as CRRT, balloon pump, and intercooling, just to name a few. One projects costs in this proposal is having per diem nurses to work the 4-hour shifts so that a staff nurse can be freed to get this hands-on training after the initial classroom education has taken place. The estimated cost would depend on the hourly rate of that per diem nurse which can be anywhere from \$31-\$50 an hour which can be calculated to a cost of about \$124-\$208 for the 4-hours. In-order to be realistic and ensure the highest number of newly hired nurses whom are ready for higher level ICU training are given an opportunity to learn new skills, one would propose at least 4 nurses. This projected cost would be \$496-\$800 (Appendix A). Other costs associated with training and re-education on ceiling lifts can be assimilated into already

scheduled shifts where the lift team is scheduled to come in regularly for a month during morning and night shifts until most of the nursing staff have been signed off as having attended the 30 minutes session.

A major barrier to none use of ceiling lift are not having the slings already in place. To gain compliance, purchase of additional sliding sheets is warranted. The cost of a Hammock Mesh sliding sheet ranges from \$277-\$398 (Appendix A) (Discovermobility.com). Currently, the microsystem only has 10 sliding sheets available for use only in one's department to accommodate a 30-bed unit. Therefore, a minimum of 20 sliding sheets needs be purchased and this would be a cost range of \$5,540-\$7960 ( $\$277 \times 20$  &  $\$398 \times 20$ ). To be realistic however, the microsystem would require at least 10 extra slings for housekeeping to replace dirty ones once a patient is transferred off the floor and the sling goes for cleaning services, also in cases where a sling becomes soiled. This would be an additional cost of \$2,770-\$3980 ( $\$277 \times 10$  &  $\$398 \times 10$ ).

### **Change Theory**

Lewin's change theory is founded upon three concepts that include: driving forces, restraining forces, and equilibrium (Petiprin, A., 2016). In this concept, driving forces motivate or push in the direction for change to occur; whereas restraining forces counter the driving forces by hindering the change and a shift into equilibrium becomes evident as the two are moving towards an opposite direction forcing no change to occur. Lewin's nursing theory of unfreezing, change, and refreezing is based upon behavior and emphasis on analysis of the *driving* and *restraining* forces are important factors into implementation of change.

Using Lewin's theory to guide one's project is appropriate because learned behavior is a key factor why ceiling lifts are not being used as originally intended, and why resource nurses



are being used on consecutive shifts. In unfreezing, individual resistance and group conformity must be overcome. This is achieved by re-establishing a policy to use ceiling lifts and to decrease the forces that might negatively affect the change would be to ensure appropriate education on use, lift draw sheets are plenty available, and further emphasize the importance of proper body mechanics. These accompanied by leadership support and evidence that MSD will be decreased. Unfreezing how staffing assignments are made, charge nurses will be given guidance to not use same nurse consecutively to perform resource nurse duties. In the *change* stage, the leaders must listen to nurse concerns, feelings, thoughts and delve deeper into the behaviors which might hinder the policy to use ceiling lifts and change of resource nurse assignments. Only when concerns are heard, that the process to accept change can occur. For leaders to support change, employee rounding should take place after the policy is made effective so that hinderances to effective change(s) can be observed first hand. Finally, in the *refreezing* stage, the expectation would be that the change is now become a habit of “standard operating procedure” (2016). Nursing staff will use ceiling lifts for most if not all patient handling processes so that a decrease in MSD can be achieved.

### **Data Source/Literature Review**

Using the PICO search strategies, (P): MSD in ICU, (I): Use of ceiling lifts, changing learned practices for resource nurses as opposed to continuing the current (C): Manual lifts, turns/boosts, transfers for patient care, patient room arrangement, patient combativeness in ICU, the current staffing of consecutive 12-hours shifts as resource nurse, low staffing and high census, fatigued nursing staff and lack of leadership guidance need to be addressed and (O): To reduce MSD in one’s microsystem. Primarily using research database from University of San

Francisco library, CINHALL, using search strategy of key words: “musculoskeletal disorders” or “injuries in ICU”, “ceiling lifts”, “consecutive 12-hour shifts” from, “traditional 8-hour shifts”, “methods to reduce MSD”; “fatigue leading to injuries” obtained at work, “lack of leadership” to allow “sustained change”, “combative patients”, and “patient room layout”; one was able to obtain more than six articles from 2008-2017 for relevancy in this essay.

In a cross-sectional study using data from 201 self-administered questionnaires of emergency and critical care nurses across public hospital in Brunei, it was asserted that adverse psychosocial factors contribute to poor mental health in nurses. These include hectic and difficult nursing specialties such as critical care, imbalances between effort and reward, over-commitment, high job demand and low influence at work (Rahman, Abdul-Mumin, & Naing, 2017). The author’s concluded that these lead to musculoskeletal injuries at high financial burdens to healthcare organizations. The research confirmed there is a relationship between psychosocial factors and development of MSDs which may become apparent days, months or years after work exposure.

In an article written by Lee & Lee, whom conducted an epidemiological assessment of organizational safe patient handling (2015), between 10,000-12,000 nurses in the United States sustain MSD in work-related, patient handling injuries which result in a median of 8-9 days loss of work. In their analysis of workers’ comp claims, 31-72 percent were obtained in hospitals. Lee & Lee research reported although evidence shows lifting equipment to be “effective and necessary” in injury prevention from patient handling and available for use by nurses, lift use is not part of regular nursing practices. In fact, in their research in two nationwide study samples reported even with lifts being available, only one third of nurses used the lifts frequently for

patient handling. The conclusion of their study indicated behavior barriers to use of available lifting equipment were due to time constraints, no specific workplace policy/protocol, insufficient or lack of training and lack of knowledge or confidence in lift use. The authors' also suggested barriers of organizational workplace safety climate, workers shared psychological perceptions such as management commitment, support and communication on safety are also linked with greater safe work practices.

Non-traditional 12-hour long nursing jobs, including night shifts and consecutive shifts are also linked to work-place injuries leading to MSDs. In 2008, a year-long cross-sectional study evaluated by Hopcia, et al (2012), confirmed the increased relationship between patterns of consecutive shifts in direct patient care and contributions of cumulative hours to those injuries. This study confirms one's project concerns of scheduling resource nurses on consecutive shifts as they work extremely hard physically and mentally to accommodate up to 30 patient care needs which almost always requires patient handling.

A study conducted by Lee et al (2013), concluded that long shifts, critical care nurses performing and aiding in multiple complex bedside procedures often with limited or crowded space while in awkward body positions and moving heavy medical equipment's are factors which lead to MSD. These factors and nursing shortage-specifically to do with ICU and low staffing, are causing nurses to switch jobs due to back pain and this must be addressed. (Lee, Faucett, Gillen, Krause, Landry, 2013).

Another study conducted by Przybysz & Levin (2016), using data from The Bureau of Labor Statistics from 2011, confirms the risks associated with overexertion while manually handling patients during moving, transferring, lifting and position changes leads to sustaining

musculoskeletal injuries. This study reports that in the United States, overexcretion is the leading cause of injuries for healthcare workers. With this data, one's microsystem MSD increases due to repeated resource nurse shifts, same nurses picking up 16-hour shifts, only to return less than 8 hours later for another scheduled 12-hour shift.

Short & Shea (2011) article, the author's reviewed level one trauma center and Magnet hospital, Tampa General Hospital (TGH), implementation of lift team and the subsequent process, costs and benefits. The article highlighted a staggering 92% reduction in cost of patient handling injuries jumping down from one-half million dollars to only \$38,000 in 2010, in about eight years after implementation. The initial cost to start the program was about \$250,000 that included six lift team hire salaries, and purchase of equipment which included ceiling lifts, some floor-based lifts and sliding boards/sheets (2011). The article highlights TGH success in reduction of work-related injuries to a hiring of facility leader (Injury Prevention Coordinator), management support, lift team and equipment training, staff education, a "culture shift" which included leadership, and more engaged and involved staff (Short & Shea, 2011). Another peer reviewed nursing journal article, (2007), through investigation found reduction of lost time, days of only light duties for nursing tasks, workmen's' compensation claims and injuries to staff were all reduced after launching a lift team in 2003 at a cardiac intensive care unit and cardiothoracic surgical intensive care unit in Dayton, Ohio.

### **Timeline**

The timeline for this project is from the beginning of February 2018 to December 2018 but the project implementation will occur in 220 hours. Once approval was obtained to pursue this project, one contacted the CNS in one's microsystem to ask whether she would be willing to

precept. One explained and informed the preceptor of goals, ideas, proposed questions and possible change implementations which could be presented to the unit director for improvements in reduction of MSDs within the microsystem. The bulk of one's timeline is spent researching supporting data for healthcare related musculoskeletal injuries. One spent two, 8-hour days in mid-February observing nursing staff on the microsystem. During periods of being scheduled to work, gathered appropriate questions to put into a questionnaire for barriers to the none-use of ceiling lifts, challenges in patient care that nurses felt contributed to injuries and gathered supporting unit data. One also spent time emailing and speaking with employee health to obtain unit data on injuries nurses reported, speaking with lift team members to see their perspective on why they are not scheduled on the weekends, gain insight on their salaries, experience requirements and role of the job. One also set up a meeting to meet with ICU/ED director for 3/22/2018 to seek more input on appropriate questionnaire types of inquiries and introduce the project aims for reduction of ICU MSD. Once, one gathers the results of the unit questionnaire, one will make another appointment with the unit director beginning of April 2018 and seek further support for the implementation of re-education for ceiling lifts and share a cost-analysis for proposal of lift teams during the weekends. Through beginning to mid-April 2018, one will continue to reach out to lift-team, QI, employee health, and PT staff for their support in re-education for unit staff and determine when towards end of April to conduct a 2-week re-education and evaluation.

### **Expected Results**

The expected data results confirming the effectiveness of the project to reduce musculoskeletal injuries to healthcare workers will not become available until year end. In

January of 2019, employee health will be able to share data on how many nurses reported injuries and workman's compensation. However, between the time of implementation at the end of April 2018, to the end of the year, observational data will be gathered. These will include assessing whether nurses are using ceiling lifts for patient transfers, patient lifting and other care. Other observations will include observations on leadership role in supporting policy change and supportive role in expectations of ceiling lift use. Whether the proposal is accepted as to not use the same nurse for consecutive shifts as resource nurse and asking charge nurses to switch the role, will be evident in assignments. If the proposal to hire lift-teams is heard and is intriguing to the unit director, he/she may decide to ask administration for the capital in hiring individuals whom qualify.

One's predictions are optimistic that nurses, leaders and managers will accept the proposal for decreasing musculoskeletal injuries within the ICU microsystem as evaluated by using the SWOT matrix (Appendix C). One believes the costs associated with injuries will be most intriguing to management and leaders whom will appreciate nursing satisfaction, less fatigue and increased morale from support of this implementation. Additionally, ceiling-lift use as designed for ICU patients will become part of an everyday process for patient care. As time moves forward from the implementation, education and support of MSD reduction, awareness of causes to these injuries will be other motivating factors for nursing staff. Learning that support from leaders is available and ongoing, nursing staff will become more engaged in using equipment already in place. The outcome that one expects, and imagines are mostly to do with awareness that nurses are working harder than necessary for patient turns, transfers and care. The expectation that through a policy change to implement daily lift use in all patient care,

administration seeing the savings of less reported injuries will become a catalyst for the organization to ensure limitation of manual lifts and when possible, adding ceiling lifts to all hospital rooms be [become] available. One also foresees more engaged nursing staff who feels supported, cared about because leadership is continuing efforts to encourage and aid in making changes for an improved work environment. The conclusions or theories which might emerge from this project firstly can be that a nurse on the unit, who is not in a defined payroll leadership or management position, effected changes which prompted an organizational change which in turn, helped improve processes for decreasing injuries obtained in the healthcare industry. This is empowerment, motivation, leadership, and awareness that any nurse can make a difference when she chooses to investigate and speak up about a process that might not be working or find a need that could be met through small change(s).

### **Nursing Relevance**

United States Department of Labor, Bureau of Labor Statics, (2016), estimates there are 2,857,180 registered nurses working in the United States. Patient care requires nurses to have direct contact and often this is related to moving the patient. The patients whom are admitted to the ICU are almost always dependent on staff members to provide all care relating to activities of daily living. The interactions between patient and nurse requires patient handling, maneuvering between equipment and adds to the nurse taking on awkward body positions to complete tasks. These exposures, lead to work related MSD. Przybysz & Levin (2016), like other authors cited in this paper, whom assert manual lifting, moving, transferring and repositioning patients are leading and highest causes of musculoskeletal injuries among health care workers in the United

States. Through the information learned and presented in this project, nurses should think twice before taking on the task of manually handling patients, even if done so with a partner.

A systematic review using experimental and observational studies from 9 cohort studies, 4 case-control studies and 23 cross sectional studies on health of nurses', author's Fronteira & Ferrinho (2011), presented physical health evidence of workplace factors which affect nursing health. Their results also confirm that nursing work, places them at greater risks for MSD. Relevancy to acknowledge workplace factors contributing to MSD by nature of nursing role is vital as patient care and continued demands to become more efficient and effective providers, calls for ensuring workplace environments are equipped with resources and policies necessary to meet these demands. This is especially relevant in effort to prevent MSD, given that nurses "work in particularly hazardous settings" (2011) finding the implementation of "ergonomically adjusted" or "worker-friendly" conditions are provided while continued screening takes place to meet with changes necessary.

### **Summary Report**

The project "Musculoskeletal Disorders of Healthcare Workers" aims to decrease work related practices which are leading causes for MSD, by 50% from time of implementation in April 2018, to end of year 2018. By identifying factors such as 1) none use of ceiling lifts already in place, 2) combative and disorderly patients, 3) low staffing, overtime , 4) repeated use of same nurses for resource duties, manual transfers, turning/repositioning, boosts and other patient care needs combined 5) with awkward body position while working in a tight and ergonomically destructive space within a patient room, and 6) lack of leadership; goals were made to seek the most prudent objectives to implement in order to achieve objective goals.



The number one goal was to establish a microsystem practice to use ceiling lifts for most if not all patient care; not just when the floor has obese patients. To ensure this practice would take place, ceiling lift sliding sheets would need to be placed on every bed in the 30 bed ICU. In proposing this to nursing staff and management, one was met with a range of reluctance to use the lifts. These were evident in the returned questionnaire (Appendix D,) which showcased reasons/reluctance stemming from the following: the time it would take to set up the sling, still needing 1-2 nurses at a minimum due to patient equipment, ceiling lift moving too slowly and need for a faster one, the battery not always being charged, the lift only moving vertically and not horizontally creating a barrier to the most effective use, also indicating due to this factor, the patient still has to be manually moved down or up the bed to hook the patient up to the sling itself. Other feedback to barriers were, not being comfortable with the use of a ceiling lift given certain patient care equipment such as mechanical ventilators and how it is much easier to just continue with the way things already are. This would suggest using a resource nurse or partner. Management was informed of costs (Appendix A), associated with additional slings and a proposal from management was made to pilot the use of lifts in 4 patient rooms and if nursing was compliant in its use, there would be evidence that a microsystem change could be effective. Additionally, when one utilized the ceiling lift once the patient was positioned on the sling for turn and transfer to new bed, who was mechanically ventilated, this was timed to take about 6 minutes from start to finish. This is about 3 minutes longer than using a resource nurse for the same type of transfer, and the lift transfer still required 2 nurses due to machinery. Management at this time did not want to invest capital into buying additional slings, but they met this project goal halfway to encourage nursing to use slings already available with support and enthusiasm.

The changes this objective made to the prospectus was to be only able to implement the object to 4 patient rooms as opposed to the original goal of all 30-beds. Being that this project is still ongoing, the success of this objective is that the goal was met, however the results of injuries obtained from April 2018 to end of year will be the indicator that by use of ceiling lifts, 50% decrease to MSD was obtained from the report that will be obtained from employee health in February 2019. One also shared questionnaire response for the question of, "If slings were already in place for each bed in ICU, would you be more willing to use it on your patients?" The responses were, "YES" by 16; "Maybe/Depends" by 6 and "NO" by 6 others, giving a reason or concern for creation of pressure ulcer for the question,

Although patient combativeness was part of some reasons behind healthcare workers obtaining MSD, this factor cannot be addressed as, *how* a patient will act/behave while in ICU care, because this cannot be predicted. However, awareness that withdrawals and mental disorders are part of why patients usually are combative, nursing staff are encouraged to take precautions when working with these patients by first assessing the patient from a distance prior to hands-on patient care. Furthermore, when the emergency room calls to give report on the patient who will be transferred to the ICU, the charge nurse will ensure the primary nurse and other staff are aware of patient's current mental state if showing signs of withdrawals and of course, if they came in with acute health issues having to do with drugs or alcohol. Therefore, the staff in ICU will take precautions from the start of patient care within the ICU setting.

During a sit-down with management, to propose a change in how staffing assignments are made, as evidenced by the microsystem culture in reasoning of using higher competency, longer experience as ICU nurse, resourcefulness, personality of the nurse in terms of team-

player/teamwork attitude, newer nurses likely to be comfortable asking questions and physical strengths for the role were discussed. Using EBP data obtained in one's research for this project, management was given statistics on nursing fatigue and repetitive motions as a leading cause for MSD as well as nurses leaving the ICU or profession due to fear of injuries. Additionally, low staffing and overtime were discussed, bringing up the point that on a regular basis, same nurses are picking up extra shifts. One encouraged management to ask staffing for a report of whom these nurses are, to be informed of how hard they are working, often with less rest periods in-between shifts. This awareness in one's opinion can aid management in ensuring safety for nurses and patients are optimized. Furthermore, when management is aware of whom these nurses are, they can engage in conversations with them to first thank them for working hard(er), being available, but also show concerns for rest periods, and acknowledge that repeated physical and psychological strain is a factor leading to MSD. Sharing data from the questionnaire (Appendix D), feedback from nurses for the question "How often are you resource nurse?", the responses obtained were "too often, six to eight times, once or twice, two to three shifts in a row, and three to five". Additionally, the majority (18 out of 28), of the surveyed stated "YES" to the question "Do you think being a resource nurse in more than 1 consecutive shift puts you at a higher risk for obtaining musculoskeletal injuries?"

Reviewing the questionnaire results with management, in one's opinion, opened an area for review and thought. In moving forward on how staffing is made for resource nurses, how many nurses are picking up extra shifts, how low staffing affects nursing morale, fatigue and essentially the effects this will have on patient care were also discussed. Management agreed that this matter is of concern and agreed to investigate the matter more in-depth. Similarly, one was

able to share data of the questionnaire regarding the same question “how often you are resource nurse”, charge nurses stated this insight changes and helps their perspectives in considering changing their current practice of using the same nurse in consecutive role of resource nurse. Some feedback on the issue from charge nurses included the same nurse asking to be resource on consecutive days. Also, depending on the day of the week and scheduled nurses, often the assignment for resource nurse is limited to who is most experienced and therefore this leads to repeating the role for 2-3 consecutive days. The charge nurses however, did agree that they will be more mindful on making assignments moving forward. In one’s opinion, this intervention proposal was successful in that at least management and charge nurses are willing to be more mindful which will involve changes. One believes this will eventually lead to a decrease in MSD as staffing will be rotated.

Furthermore, subject of low staffing and current nursing showing potential for higher level ICU competencies were addressed with both management and charge nurses. One shared the need for the ability to rotate resource nurse and how this can be achieved, is through higher competencies being made available to certain nurses showing motivation and potential for success. This discussion ended well in finding out a new cohort of 6 nursing ICU residents is underway and in a time span of 3 months, they will be done with the residency allowing for a fully staffed day and night shifts. Touching on certain nurses by name and speaking about their readiness for higher level skills, the CNS shared upcoming training for balloon pump and intercooling equipment. The plan was made to have these 5 nurses (from day and night shift combined), attend the training and these nurses would be the first to get the 4 hours of hands on training. Additionally, management and charge nurses shared the idea of piloting another method

to decreasing the use of same nurses as resource nurse would be to have 1 experienced ICU nurse and 1 newer ICU nurse to take on the role of resource nurses for one shift. This has already taken place within the unit, and thus far seems to be successful. The costs associated with possibly needing per diem nurses were also reviewed (Appendix A) and management agreed, that should there be a need to staff per diem nurses to free up staff nurses, they will factor it into the schedule.

In The proposal for changing the patient badge scanners which are currently housed behind the patient bed and computer, brought up many concerns from employees. As a matter-a-fact, an overwhelming 100% of returned questionnaire (Appendix D), showed each respondent has a problem with the implied overreaching/location for the scanner. Management explained this was a concern already brought up by another nurse and measures are being taken to move the scanner to directly sit next to the computer monitor. Similarly, the discussion regarding patient equipment such as dialysis machines being in the way of scanners and computer screens were addressed, but a solution has not been reached due to the location of the drain for dialysis machine being directly below the computer monitor. Management, CNS and charge nurses shared a consensus that when dialysis is ordered for a patient that they will try and work closely with the primary nurse and dialysis nurse to try their best in allowing more room between patient bed, equipment and computer. This will be an ongoing effort that will be evaluated by management and follow-up questionnaire at the end of the year 2018.

The last proposal for management support in ensuring the success of project objectives along with fundamental principles of the acknowledgement that when leadership is involved, not only in the beginning of the change process, but also along the continuum of changes, more

success and staff engagement are fostered and sustained. One's observation that management will be successful in this proposal because the deficits experienced from past management in leadership is being replaced with new leaders in positions of new ICU director, new ICU manager, new ICU CNS and new ICU assistant manager. As time progresses over the year, one will better be able to gauge the commitment of these new leaders in the ICU MSD reduction project. At this present time, there is observed enthusiasm, motivation, openness to hear about changes, and differing experiences lending to higher expectations and more presence in visibility on the ICU floor during new management scheduled hours during the week. Importantly, the nursing staff are eager to learn what these new leaders will bring to the once none-management/leadership motivated environment. Fundamentally, this project objective will require time over the next year, also for this projects success.

Implementing changes within one's microsystem to help reduce MSD, proved to be a challenge. Unfortunately, not many nurses like change and some resistance was given on trying to implement change. This was evident in the questionnaire comments for the question "Are bodily injuries a concern for you at work?" The response from few nurses were "NO, it's part of the job; NO, not a concern", and others left this question blank. One expected some push-back from the department as many nursing are not willing to change the way things have been done for many years. Therefore, one was able to task two nurses (one from each shift) highly supportive of this project objectives, to be change champions. According to Nurse.com, survey of more than 1,000 nurses reported, implementation of changes even though based on EBP, can be a challenge due to resistance. However, to continue efforts in implementing proposed changes were confirmed with the survey questionnaire response of "YES" by 25/28 respondents, for the

question “Are bodily injuries a concern for you at work?” This survey helped one gain insight on nurses’ perspectives for work related MSD and most of nursing having concerns for this type of injury at work.

The benefit of having implemented change into one’s microsystem to reduce MSD directly affects how nurses complete their patient care tasks daily. Agreeing that project goals for this objective will require change; change champions, management support, EBP and CNL leadership will help continue efforts to have every nurse involved in the success of this project. With the collaboration of assessment, evaluation, and committed efforts from these leaders will help sustain the change until it becomes a habit in patient care, which eventually can become a practice within the macrosystem.

## References

- Black, T., Shah, S., Busch, A., Metcalfe, J., & Lim, H. (2011). Effect of transfer, lifting, and repositioning (TLR) injury prevention program on musculoskeletal injury among direct care workers. *Journal of Occupational and Environmental Hygiene*, 8(4), 226-235.
- Bernal, D., Campos-Serna, J., Tobias, A., Vargas-Prada, S., Benavides, F. G. & Serra, C. (2015). Work-related psychosocial risk factors and musculoskeletal disorders in hospital nurses and nursing aides: A systematic review and meta-analysis. *International Journal of Nursing Studies*, 52(2), 635-648.
- Centers for Disease Control and Prevention. Preventing back injuries in health care settings. Retrieved from <https://blogs.cdc.gov/niosh-science-blog/2008/09/22/lifting/>
- Change Theory (2011). Retrieved from [http://www.currentnursing.com/nursing\\_theory/change\\_theory.html](http://www.currentnursing.com/nursing_theory/change_theory.html)
- CMS.gov. retrieved from [https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/HospitalAcqCond/index.html?redirect=/HospitalAcqCond/01\\_Overview.asp#TopOfPage](https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/HospitalAcqCond/index.html?redirect=/HospitalAcqCond/01_Overview.asp#TopOfPage)
- Elnitsky, C.A., Lind, J.D., Rugs, D., & Powell-Cope, G., (2014) Implications for patient safety in the use of safe patient handling equipment: a national survey. *International Journal of Nursing Studies*, 51(12): 1624-1633.
- Chen, J., Koren, M., E., Munroe, D. J., Ping Y. (2014) Is the hospital's magnet status linked to HCAPHPS scores? Hospital consumer assessment of healthcare providers and systems. *Journal of Nursing Care Quality*, 29(4): 327-335. 9p.
- Discovermobility.com Retrieved from <http://www.discovermymobility.com/store/ceilinglifts/>



Health and Safety Authority (2014-2015) Retrieved from

[http://www.hsa.ie/eng/Publications\\_and\\_Forms/Publications/Corporate/HSA\\_Statistics\\_Report\\_2014-2015.pdf](http://www.hsa.ie/eng/Publications_and_Forms/Publications/Corporate/HSA_Statistics_Report_2014-2015.pdf)

Hopcia, K., Dennerlein, J. T., Hashimoto, D., Orechia, T., & Sorensen, G. (2012). Occupational injuries for consecutive and cumulative shifts among hospital registered nurses and patient care associates. *Workplace Health & Safety*, 60(10), 437-444

Jakobsen, M.D., Aust, B., Dyreborg, J., Kines, P., Illum, M.B., & Andersen, L.L. (2016).

Participatory organizational intervention for improved use of assistive devices for patient

transfer: study protocol for a single-blinded cluster randomized controlled trial. 17:501

DOI 10.1186/s12891-016-1339-6

Jakobsen, M., Sundstrup, E., Brandt, M., Jay, K., Aagaard, P., & Andersen, L. (2015). Physical exercise at the workplace prevents deterioration of work ability among healthcare workers: Cluster randomized controlled trial. *BioMed Central Public Health*, 15(1), 1-9.

Lee, S.J., Lee, J.H., & Gershon, R.M. (2015) Musculoskeletal symptoms in nurses in the early implementation phase of California's safe patient handling legislation. *Research in Nursing & Health*, 2015, 38, 183-193. DOI: 10.1002/nur.21657

Lee, S.J., Lee, J.H., (2017) Safe patient handling behaviors and lift use among hospital nurses: a cross-sectional study. *International Journal of Nursing Studies*, Sep2017; 74 53-60. 8p.

Lee, S.J., Faucett, J., Marion, G., Krause, N., & Landry, L., (2013). Risk perception of musculoskeletal injury among critical care nurses. *Nursing Research*. Vol (62)1, p 36-44. DOI: 10.1097/NNR.0b013e31827334d6

- Petiprin, Alice (2016). Nursing-theory. Lewin's change theory. Retrieved from <http://nursing-theory.org/theories-and-models/Lewin-Change-Theory.php>
- Przybysz, L., & Levin, P.F. (2017). Initial results of an evidence-based safe patient handling and mobility program to decrease hospital worker injuries. *Workplace Health and Safety*, 65(2), 83-88
- Rahman, H.A., Abdul-Mumin, K., & Naing, L., (2017) Psychosocial factors, musculoskeletal disorders and work-related fatigue amongst nurses in Brueni: structural equation model approach. *International Emergency Nursing. Vol 34, Pp 17-33*
- Short, M., & Shea, J., (2011). Lift teams: an effective strategy in safe patient handling. *American Journal of Safe Patient Handling & Movement*. Vol. 1, 36-41
- Washington State Hospital Association (2017) Power Point Presentation from Partnership for Patients. Obtained from employee health at my work. (See document sent via email to protect workplace identification).
- The Advisory Board (2018). Common nursing practices are not always based on evidence. Retrieved from <https://www.advisory.com/daily-briefing/2014/04/03/common-nursing-practices-are-not-based-on-evidence>
- U.S. Federal and State Legislative Summary Safe Patient Handling/Ergonomics, 2011. Retrieved from [http://asphp.org/wp-content/uploads/2011/05/SPH\\_Legislation\\_Update\\_March\\_2011.pdf](http://asphp.org/wp-content/uploads/2011/05/SPH_Legislation_Update_March_2011.pdf)
- US Bureau of Labor Statistics (2017) Retrieved from <https://www.bls.gov/iif/oshfaq1.htm#q15>
- United States Department of Labor Occupational Safety and Health Administration. Retrieved from [https://www.osha.gov/OshDoc/data\\_Hurricane\\_Facts/faq\\_longhours.html](https://www.osha.gov/OshDoc/data_Hurricane_Facts/faq_longhours.html)

United States Department of Labor, Bureau of Labor Statics, (2016). Occupational employment and wages, 29-1141 registered nurses. Retrieved from  
[https://www.bls.gov/oes/current/oes291141.htm#\(1\)](https://www.bls.gov/oes/current/oes291141.htm#(1))

*Weighing in on lift teams* (2007). EBSCOhost CINAHL Complete USF Library Search

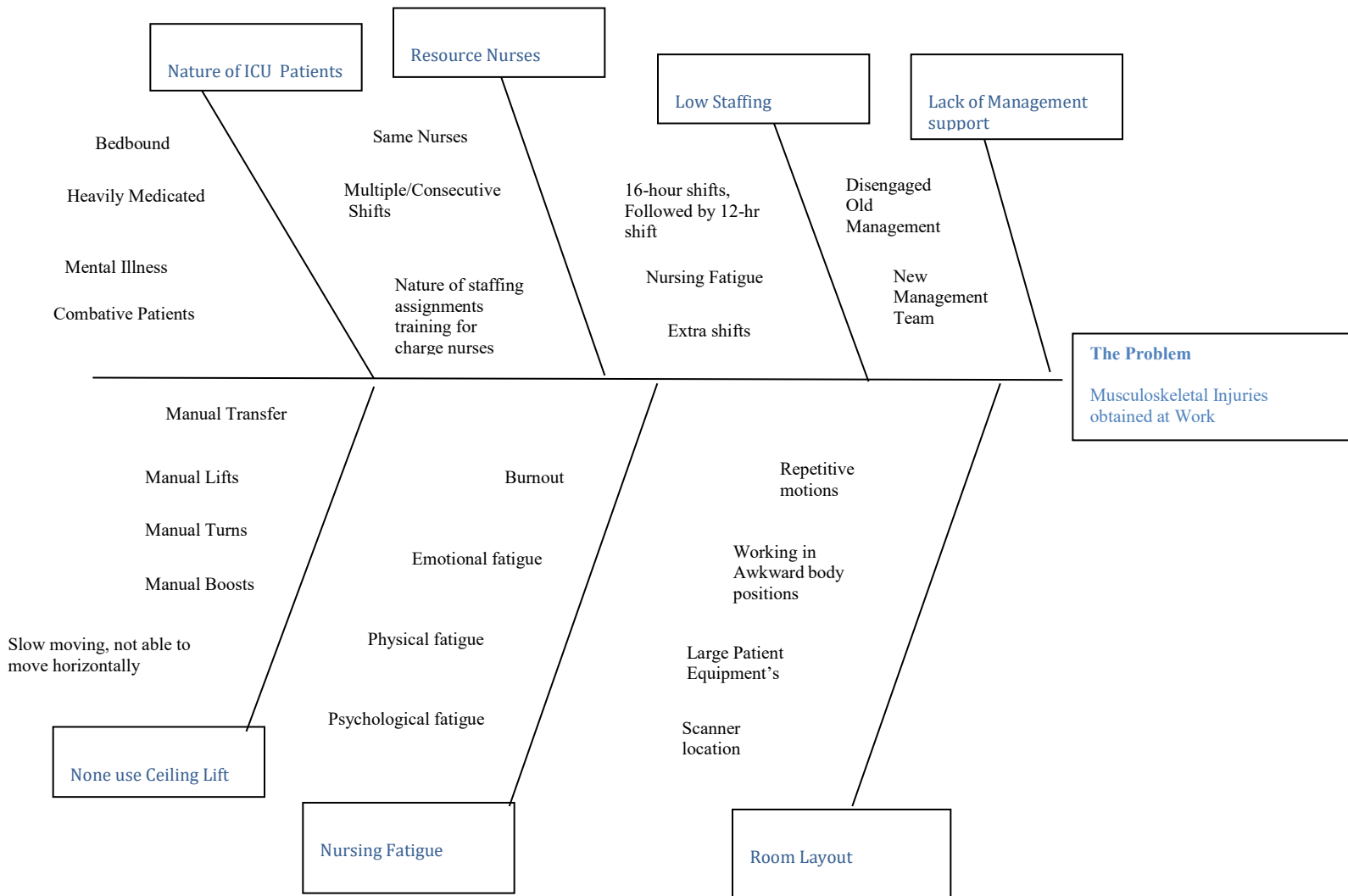
## Appendix A

## Costs and Savings

Cost		Savings end of 2018	
2017 6 ICU Nurses Claim Workman's Compensation	\$26,749.48	Decreasing Workman's Compensation by 50%	\$13,374.74
Lift Team Saturday & Sunday	Lower \$336 Higher \$400	Lower -\$336 Higher -\$400	
Training New Nurses on Advanced Competencies	Lower \$496 Higher \$800	Lower -\$496 Higher -\$800	
Purchase of Additional Sliding Sheets	Lower \$277 Higher \$398 each for minimum of 20 \$5,540-\$7960		
Re-training/education on Ceiling Lifts	\$0.00	\$0.00	
Total Costs of lower end \$6,372 (\$336 +\$496+\$277)		\$7,834.74 SAVING OF LOWER END	
Total Costs of higher end \$9,160 (\$400+\$800+\$398)		\$4,214.74 SAVING OF HIGHER END	

Appendix B

Root Cause Analysis



## Appendix C

## SIMPLE SWOT MATRIX

INTERNAL FACTORS	
STRENGTHS (+)	WEAKNESSES (-)
<ul style="list-style-type: none"> <li>• New Management, changes will be heard</li> <li>• Most staff agree MSD is a risk at work</li> <li>• Equipment is already in place (ceiling lift)</li> <li>• EBP that project objectives lead to decrease MSD at work</li> <li>• New ICU residency cohort brings staffing up</li> </ul>	<ul style="list-style-type: none"> <li>• Staff reluctance to change/compliance</li> <li>• Patient demographics will not change but only get more difficult and heavy</li> <li>• New management might not think this implementation is a priority with other issues</li> <li>• Time is takes to set up the sling</li> </ul>
EXTERNAL FACTORS	
OPPORTUNITIES (+)	THREATS (-)
<ul style="list-style-type: none"> <li>• Decrease MSD</li> <li>• Decrease costs associated with MSD</li> <li>• Re-train and educate on risks of MSD and equipment</li> <li>• Give newer nurses opportunities to learn higher level ICU competencies</li> <li>• Have lift teams also available during the weekends</li> <li>• More engaged, motivated staff post interventions</li> <li>• Get leadership involved in changes objectives</li> </ul>	<ul style="list-style-type: none"> <li>• Long hours/overtime/low staffing</li> <li>• Repeated shifts as resource nurse</li> <li>• Learned culture and practices</li> <li>• Patient room layout hinders opportunities for Ergonomics implementation</li> <li>• Outside organization nurses (dialysis) nurses may Not comply in working with staff nurse in equipment placement</li> </ul>

## Appendix D

## Musculoskeletal Injuries of Healthcare Workers SURVEY

- Have you ever obtained musculoskeletal injury at work? YES or NO
- If YES, did you report it to Employee Health? YES or NO
- What part of the body did you injure? If you answered YES
- Have you missed work from work injuries?
- Have you ever injured or felt like you obtained an injury, but did not report it? YES or NO
  
- Are bodily injuries a concern for you at work? YES or NO  
**WHY?**
- Do you use the ceiling lift for your patient handling needs? YES or NO
- How often are you resource nurse in one consecutive shift?
- Do you think being a resource nurse in more than 1 consecutive shift puts you at a higher risk for obtaining musculoskeletal injury? YES or NO
- If slings were already in place for each bed in ICU, would you be more willing to use it on your patients?
- Do you have any ideas of what would make it easier for you to use ceiling lifts? Please explain...
- Do you believe our current placement of patient badge scanners behind the patient bed, computer monitor, and ICU vitals monitor **adds** to the possibility of MSD? YES or NO

## Appendix E

## PATIENT SAFE HANDLING

## DEPARTMENT OF PATIENT CARE SERVICES Page 1

**PURPOSE:** The Safe Patient Handling policy will provide guidelines to ensure that employees use safe patient handling and moving techniques. It also will seek to reduce the risk of injury to patients and staff.

**DEFINITIONS:** Manual patient lifting: The act of moving, lifting, transferring or repositioning a patient using the caregiver's body strength, without the use of lift/handling aids or devices which reduce forces on the worker's musculoskeletal structure.

Patient mechanical lift: The act of moving, lifting, transferring, or repositioning with the help of specialized lift/handling equipment such as portable lifts or fixed ceiling lifts.

Patient handling devices and aids: The equipment used to assist with the moving, lifting, transferring or repositioning of patients using slide boards, slide sheets, tubular slide sheets, gait belts with handles, bed options, hover mats, and various surface friction reducing devices.

High risk patient handling task: Tasks that cause a high risk of musculoskeletal injury to the caregiver and pose a risk to the patient. Risks might include the patient falling or being dropped, acquiring a skin tear or bruise, or other pain from being manually touched. Examples of such tasks include, but are not limited to transferring, repositioning, rolling/turning, bathing the patient, boosting the patient up in bed, changing/cleaning the patient, holding a body part for a procedure, and tasks with long duration.



## PATIENT SAFE HANDLING

## DEPARTMENT OF PATIENT CARE SERVICES Page2

Culture of safety and teamwork: Describes the collective attitude of employees taking shared responsibility for safety in a work environment. By doing so, they provide a safe environment of care and collaborative teamwork for themselves as well as the patient.

Safe Patient Handling Committee: Team of hospital staff with a membership mix of at least 50% direct patient care staff from various patient care areas. The purpose of the team is to facilitate the Safe Patient Handling guidelines.

Reporting Unsafe Situations: Guidelines for healthcare staff to follow when they have concerns about their own safety or the patient's safety.

a culture of safety and teamwork around patient handling and be expected to help each other when asked for assistance.

Unassisted manual patient lifting and high risk patient handling tasks will be reduced or eliminated unless it will compromise the well being of the patient (examples could include but are not limited to assisting with a patient fall with no room for a lift device or in a fire evacuation). Patient mechanical lifts, patient handling devices and aids will be used whenever possible.

## RESPONSIBILITIES OF STAFF:

**1. Management Staff**

PATIENT SAFE HANDLING

DEPARTMENT OF PATIENT CARE SERVICES Page 3

- a. Assure that all employees receive initial and annual training on the methods of a safe patient move, lift, transfer and reposition including body mechanics and use of patient mechanical lifts, handling devices and aids.
  - b. Support and assure that procedures of the Safe Patient Handling policy are followed.
  - c. Assure that staff has quick and easy access to patient mechanical lifts, handling devices and aids.
  - d. Work with the Safe Patient Handling Committee to assess the needs of their departments and plan for equipment purchases as well as additional problem resolution.
  - e. Assure that all equipment, devices and aids have effective storage and repair in order to keep them available and functional.
  - f. Assure that employees report injuries to Employee Health and investigate the cause. Follow-up with the individual employee or department employees as appropriate to prevent reoccurrence.
  - g. Approve staffing assistance for compliance of this policy for teamwork and problems solving when staff report unsafe situations.
2. Direct Caregivers involved in caring for, performing procedures on, moving or transporting patients:
- a. The admitting RN will assess and document the patient needs for moving and handling.
  - b. The primary care RN, physical therapist or other designated staff will identify the level of assistance (See Addendum A for Level of Assistance guidelines) needed and document

## PATIENT SAFE HANDLING

## DEPARTMENT OF PATIENT CARE SERVICES Page 4

the level in the care plan and on the white board in the patient's room. c. All employees involved with patient handling activities will follow these guidelines: d. Assess the patient's cognitive and functional status to determine the patients moving and handling needs prior to each patient handling task. e. Determine and obtain the patient handling aid, device, or mechanical lift which is most appropriate for each patient based on the Level of Assistance guidelines (See Addendum A). Caregivers should use a gait belt for all patients who are ambulating or being transferred. f. Use protective body mechanics when transferring or moving a patient (even when using a mechanical or assistive device). g. Assess the working environment and potential barriers to utilizing equipment. Reduce barriers as much as possible to include things such as reducing the room clutter, reducing clutter in the hallways and moving all items to one side, and removing unnecessary furniture and posting signs to indicate wet floors. h. Communicate and coordinate the move, lift, transfer or reposition of a patient with all involved staff. Obtain help of other staff members as needed to safely move the patient. i. Support the culture of safety and teamwork in accomplishing safe patient handling. Anticipate the resources needed by those called to assist. Assist coworkers including those from other departments with patient handling tasks, use the "Ticket to Transport" (See Addendum B on Transport/Transfer Guidelines) when sending patients to other departments for tests and procedures, and follow the hospital handoff procedure when transferring care to another caregiver.

j. Consider the height of the patient's bed before performing patient handling activities. Consider the heights and distances of patient handling starting and ending points. Make sure that

## PATIENT SAFE HANDLING

## DEPARTMENT OF PATIENT CARE SERVICES Page 5

brakes are secure and in working order prior to patient handling activities. k. Explain the move, lift, transfer, or reposition procedure to the patient. Patients will be encouraged to assist with their own movement, lift, transfer or repositioning to ensure that their independence is not compromised. l. Document the moving and handling needs, the type of equipment used and the patients' response to the move, lift, transfer or reposition. m. Participate in activities of the Safe Patient Handling team by things such as assisting with ongoing hazard assessments, providing feedback to department representatives, and attending training sessions. n. Follow the guidelines for transferring and transporting patients (See Addendum B). o. Accomplish initial and annual training requirements.

3. Safety and Ergonomic Specialists (Ergonomic Educators, Employee Health staff, Risk Manager/Safety Officer, Rehab Specialists, and Selected Educators: a. Assure that employees involved in patient handling activities receive initial and ongoing training on the policy and procedures for safe patient handling. b. Arrange for the appropriate resources to problem solve and make recommendations for handling challenging situations. c. Research and provide information regarding equipment needed for the implementation of this policy. d. Evaluate job functions and make safety recommendations.

4. Safe Patient Handling Committee: a. Review and revise the Safe Patient Handling policy and procedures. b. Conduct periodic assessments of safe patient handling at Valley Medical Center. c. Provide input into patient handling devices and aids, patient mechanical lifts and other equipment needs. d. Develop and assist with the implementation of staff training on safe patient

## PATIENT SAFE HANDLING

## DEPARTMENT OF PATIENT CARE SERVICES Page 6

handling tasks. e. Problem-solve issues and make recommendations for safe patient handling. f. Get feedback from and report information to departments and employees involved in handling patients.

**REPORTING UNSAFE SITUATIONS AND REQUESTING ASSISTANCE:** committed to ensuring that no employee or patient becomes injured as a result of unsafe patient handling. To promote safe patient handling and comply with the requirements of RCW 70.41.390(6), has developed a procedure that allows an employee to refuse to perform or be involved in patient handling that the employee believes in good faith would place an unacceptable risk of injury on either a hospital employee or a patient.

An employee will not be subject to disciplinary action for refusing to perform or be involved in patient handling that the employee believes in good faith would place an unacceptable risk of injury as long as the employee, in good faith, follows the requirements of the procedure set forth in this policy.

**ARCHITECTURAL REVIEW:** During the planning phase of remodels and additions, consideration will be made to incorporate safe patient handling equipment, the ability to upgrade to such equipment at a later date, and the consideration of workplace ergonomics. To accomplish this, the following procedures will be followed:

1. Involve the Safety and Ergonomic Specialists in all remodel and new addition planning to assist in the design of workstations.
2. Instruct the architects and equipment vendors to explain

how they are incorporating appropriate ergonomic factors in the design or equipment. 3. As part of the initial design stage and prior to the final design phase of new construction or remodeling, solicit employee feedback on workstation and process designs to gather input from those who perform the work.